

*Conservation Assessment
for
(Cetraria oakesiana) Tuck.*



Photo: Stephen Sharnoff

USDA FOREST SERVICE, EASTERN REGION

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This Conservation Assessment was prepared to compile the published and unpublished information on the subject taxon or community; or this document was prepared by another organization and provides information to serve as a Conservation Assessment for the Eastern Region of the Forest Service. It does not represent a management decision by the U.S. Forest Service. Though the best scientific information available was used and subject experts were consulted in preparation of this document, it is expected that new information will arise. In the spirit of continuous learning and adaptive management, if you have information that will assist in conserving the subject taxon, please contact the Eastern Region of the Forest Service - Threatened and Endangered Species Program at 310 Wisconsin Avenue, Suite 580 Milwaukee, Wisconsin 53203.

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EXECUTIVE SUMMARY

Cetraria oakesiana Tuck. is designated as a Regional Forester Sensitive Species on the Superior National Forest in the Eastern Region of the Forest Service. The species also occurs on the Hiawatha, Huron-Manistee, and Ottawa National Forests. The purpose of this document is to provide the background information necessary to prepare Conservation Approaches and a Conservation Strategy that will include management actions to conserve the species.

This conservation assessment provides available information on *Cetraria oakesiana* Tuck. and its distribution, habitat, range, status, life history, and ecology. *Cetraria oakesiana* grows on conifer bark and wood in moist areas and is a circumboreal species with an Appalachian-Great Lakes distribution in North America. It is not listed on any red lists for any of Europe. In the Great Lakes area common habitat for this species is along lakeshores on the bases of trees. Threats to *Cetraria oakesiana* are any destruction of shoreline habitats by residential development, logging, trails or roads.

ACKNOWLEDGEMENTS

Appreciation is extended to the curators of the herbaria for help in obtaining label data for collections of rare lichens and to Dr. James Bennett for assistance. Regional USFS personnel also provided maps and assistance in obtaining data for their forests and are thanked for their help.

INTRODUCTION

For this document a search was made of the printed literature, Internet (W-1), and other literature thought to have pertinent information. Distribution and ecological information was gathered along with range-wide status and threats. All collections of the species found in the University of Michigan Herbarium (MICH), University of Minnesota Herbarium (MIN), Michigan State University Herbarium (MSC), and University of Wisconsin Herbarium (WIS) were located and the labels copied and entered into species databases. From these records ecological information, land ownership, and distribution maps were prepared for the area covered in this report. The draft reports were then sent to reviewers for comments and additions.

Most lichens do not have common names that are widely known, although some attempts have been made to create them (Brodo et al. 2001). For most species there is little known about the detailed ecology and the historical distributions of these lichens but some data could be derived from the herbarium collections.

NOMENCLATURE AND TAXONOMY

Family:	Parmeliaceae
Scientific name:	<i>Cetraria oakesiana</i> Tuck.
Common name:	none
USDA plant code:	ALOA
Synonyms:	<i>Allocetraria oakesiana</i> (Tuck.) Randle & Thell <i>Tuckermannopsis oakesiana</i> (Tuck.) Hale

This species was placed in a new segregate genus *Allocetraria* but this placement is not followed by many lichenologists in North America and Europe although it is recognized in Esslinger & Egan (1995) and Brodo et al. (2001).

DESCRIPTION OF SPECIES

“Thallus yellowish green, adnate, 3-7 cm broad, sorediate, the lobes often more or less parallel; lower surface light tan to white, sparsely rhizinate; apothecia rare; erect marginal pycnidia sometimes present” (Hale 1979).

Characteristic features are the yellowish green thallus with yellowish marginal soredia and white medulla. See color photo # 106 in Brodo et al. (2001). Another yellow sorediate species that is quite common is *Cetraria pinastri* but that is brighter yellow and has a yellow medulla. *Flavoparmelia* spp. are more yellow-green.

LIFE HISTORY

Reproduction : This lichen reproduces mainly by asexual soredia in our area but some forms in the southern Appalachian area have apothecia and reproduce sexually by spores.

Ecology : This lichen grows on bark and occasionally on rocks in very humid areas such as near lakes and streams. It is usually found on the bases and lower branches of trees, and places with higher humidity.

Dispersal : Dispersal of this lichen is mainly by soredia in the northern part of its range but occasionally by spores in the southern Appalachians.

Obligate Associations : NA

HABITAT

Range-wide : This species is usually found on conifer bark and wood in shaded cool forests (Brodo et al. 2001, Nimis 1993) in areas of high precipitation. In Europe it is found near streams and in areas with persisting snow cover in beech-spruce and spruce-fir forests (Wirth 1995). Dey (1978) reported it “common on rock, conifer trees, hardwood trees and shrubs in most community types” in the southern Appalachians.

National Forests : Usually found near water in shady coniferous forests on the bases of spruce and balsam fir. In northern Michigan usually occurs near lakes and streams and in *Thuja* bogs but it may also be found on hardwoods and occasionally in old-growth white pine forests. This indicates that at the western edge of its range (in Minnesota) it is found only in the most optimum habitats and substrates.

Site Specific : This species apparently reaches the western end of its distribution in the Susie Islands in far northeastern Minnesota where one specimen was found on the base of a balsam fir in shady moist balsam fir-black spruce forest near Lake Superior.

DISTRIBUTION AND ABUNDANCE

Range-wide Distribution: This is a circumboreal species found as far south as Italy in Europe (Nimis 1993). This species has an Appalachian-Great Lakes distribution (Hale 1956) in North America. It is common from Maine (Degelius 1940) and southern Ontario (Wong & Brodo 1992) to North Carolina (Degelius 1941, Dey 1978).

Region-wide Distribution: This species is at the western edge of its distribution in our region and is more common in the eastern part. It is known only from Michigan and Minnesota (see Appendix 1). Harris (1978) says this species is common in the northern Lower Peninsula and in Upper Peninsula of Michigan and Fryday et. al. (2001) list it for two counties in Michigan. In this region before 1970 it was known from 45 localities, and after 1970 it has been collected at 57 additional localities.

Population Trends: Range-wide there is little information on population trends. Within the region the populations seem to be stable but with few historical records it is uncertain what the trends might be.

RANGEWIDE STATUS

This species is not listed outside of North America. For definitions of ranks see Appendix 4.

U. S. Fish and Wildlife Rank:	Not ranked
Global Heritage Status Rank :	Not ranked
U. S. National Heritage Rank :	Not ranked
US Forest Service, R9 Sensitive Species:	Sensitive on Superior National Forest. See Appendix 2.
Michigan Rank :	Not ranked
Minnesota Rank :	Threatened
Wisconsin Rank :	Not ranked
Ontario, Canada Rank :	Not ranked

In the eastern part of the range of *Cetraria oakesiana*, this species is probably secure but in this region the western and southern populations are in doubt, especially on the Huron and maybe the Ottawa National Forests. The one locality in Minnesota is on a protected island and is not likely to be threatened. The species may have been present along Lake Superior in northeastern Minnesota at one time but the extensive development of the shoreline may have eliminated it.

POPULATION BIOLOGY AND VIABILITY

This species is at the extreme western end of its range in northern Minnesota but is more common in the eastern part of the region. In our area it reproduces asexually by soredia. The Michigan populations on Isle Royale are frequent enough to maintain its viability. In the other parts of Michigan further south only occasional populations have been found and there is the potential for loss of viability. The species requires high humidity and probably lack of forest disturbance to survive.

POTENTIAL THREATS

This species is not rare in northeastern North America west to Michigan. In Minnesota there is a possible risk of loss.

Present or Threatened Risks to Habitat : This species grows in cool very humid habitats, and any activity that damages the shoreline forest on larger lakes is a potential threat. Because this lichen grows on the lower branches and trunks of shrubs and trees near these waterways, even clearing of shrubs could reduce the humidity and impact the habitat. Residential development, logging, and construction of foot trails or roads along rivers and lakes where this lichen occurs can impact potential habitat.

Overutilization : NA

Disease or Predation : NA

Inadequacy of Existing Regulatory Mechanisms : Michigan and Wisconsin do not have official lists of protected lichens and are not monitoring them.

Other Natural or Human Factors : Climate warming, major fires or blowdowns would reduce the humidity in the habitats where this species occurs.

SUMMARY OF LAND OWNERSHIP AND EXISTING HABITAT PROTECTION

Sixty five of the 102 known localities of this species are in areas under state or federal ownership but these areas may not be protected. See data base table for known localities in Appendix 3.

RESEARCH AND MONITORING

Existing Surveys, Monitoring, and Research : None

Research Priorities : Suitable habitats should be searched for to locate additional localities where this lichen occurs, especially along shores of Lake Superior and other lakes. The historical localities should be checked for the survival of this species, and to obtain more detailed ecological information about the suitable habitats.

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INTERNET SOURCES

W-1 Recent Literature on Lichens - http://www.toyen.uio.no/botanisk/bot-mus/lav/sok_rll.htm

W-2 Plant name database: http://plants.usda.gov/cgi_bin/topics.cgi

LIST OF CONTACTS

Information Requests:

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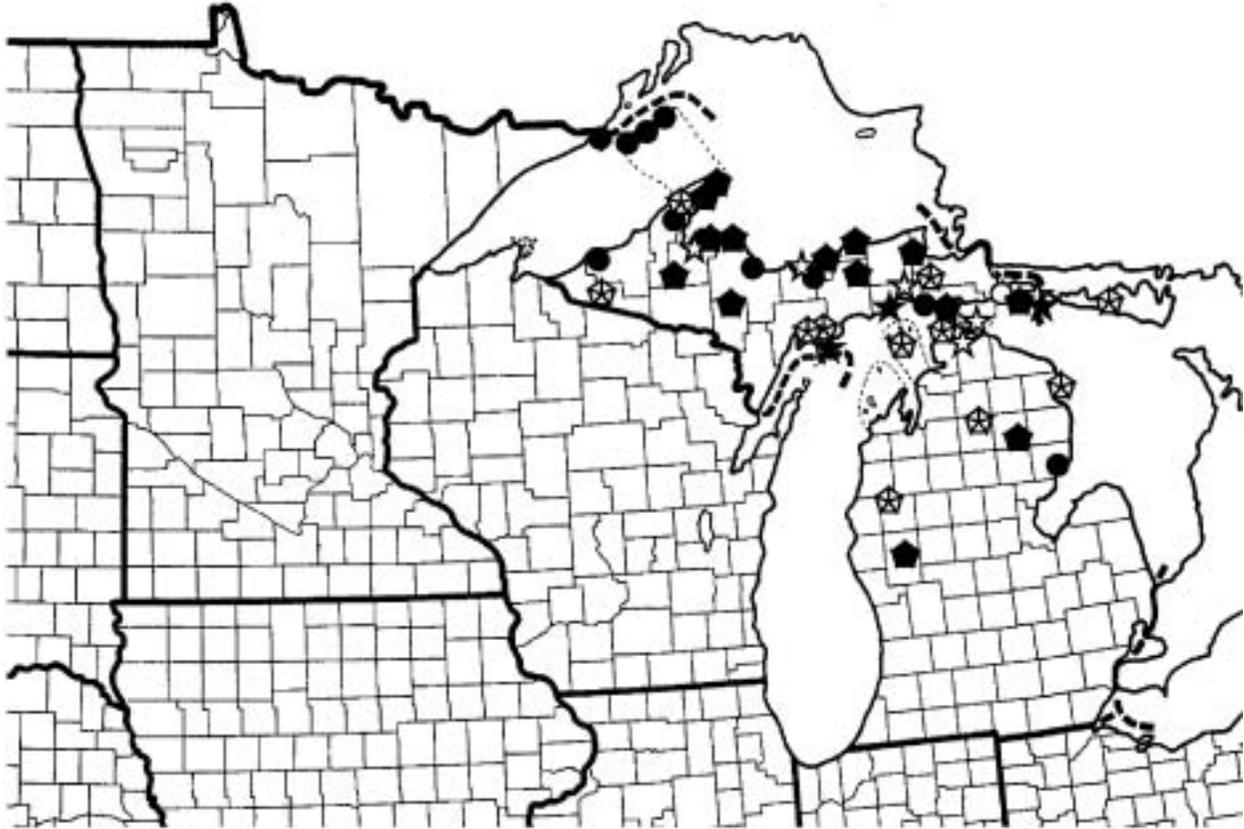
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APPENDICES

APPENDIX 1 Distribution of *Cetraria oakesiana*



Cetraria oakesiana

- ☆ = MICH herbarium specimens before 1970
- ★ = MICH herbarium specimens after 1970
- = MIN herbarium specimens before 1970
- = MIN herbarium specimens after 1970
- ☆ = MSC herbarium specimens before 1970
- ★ = MSC herbarium specimens after 1970
- = WIS herbarium specimens before 1970
- = WIS herbarium specimens after 1970

APPENDIX 2 Lichens of conservation concern on the Lakes States National Forests

Scientific Name	CN	CP	HI	HM	OT	SU
<i>Arctoparmelia centrifuga</i>						(X)
<i>Caloplaca parvula</i>						X
<i>Cetraria aurescens</i>			(X)	(X)	(X)	X
<i>Cetraria oakesiana</i>			(X)	(X)	(X)	X
<i>Cladonia wainioi</i>						X
<i>Lobaria quercizans</i>	(X)		(X)	(X)	(X)	X
<i>Peltigera venosa</i>						X
<i>Pseudocyphellaria crocata</i>						X
<i>Ramalina thrausta</i>						(X)
<i>Sticta fuliginosa</i>						X
<i>Usnea longissima</i>					(X)	X

X = present in the forest and listed as sensitive

(X)= present in the forest but not listed as sensitive

National Forest Codes

CN	Chequamegon/Nicolet
CP	Chippewa
HI	Hiawatha
HM	Huron/Manistee
OT	Ottawa
SU	Superior

APPENDIX 3 Locality data of *Cetraria oakesiana*

<i>Area</i>	<i>State</i>	<i>County</i>	<i>Locality</i>	<i>Year</i>
	MI	Mackinac	NNW of Big Knob	1977
	MI	Keweenaw	S of Copper Harbor	1976
	MI	Mackinac	Little Brevort Lake, W of St. Ignace	1975
	MI	Mackinac	NW of Cedarville	1949
	MI	Newaygo	6 mi NE of White Cloud	1973
	MI	Cheboygan	1 mi N of Levring Road	1973
	MI	Baraga	3 km WSW of mouth of Huron River	1977
	MI	Marquette	3 km NW of Howe, Huron Mts.	1976
	MI	Marquette	1.2 km N entrance, Salmon Trout River	1976
	MI	Marquette	Mt. Ida, Huron Mts.	1976
	MI	Alger	Laughing Whitefish Point	1976
	MI	Marquette	Salmon Trout River	1976
	MI	Mackinac	Mackinac Isl.	1961
	MI	Charlevoix	Beaver Isl., Donegal Bay	1961
<i>Area</i>	<i>State</i>	<i>County</i>	<i>Locality</i>	<i>Year</i>
	MI	Houghton	Calumet, Lake Superior	1957

	MI	Cheboygan	UM Biol. Station, Gorge	1949
	MI	Preque Isle	Presque Isle Lighthouse	1958
	MI	Houghton	Lake Superior shore	1958
	MI	Houghton	Rice Lake	1958
	MI	Houghton	Upper entrance Keewenaw Waterway	1958
	MI	Houghton	Beacon Hill	1967
	MI	Chippewa	Detour, W of	1949
	MI	Marquette	Flat Rock, Huron Mts.	1976
	MI	Marquette	W end of Huron Mts.	1949
	MI	Mackinac	1.7 mi W of Nuns Creek	1972
	MI	Cheboygan	Birch & Douglas Lakes	1923
	MI	Keweenaw	11 km NW of South Point	1976
	MI	Marquette	Cliff Lake, Huron Mts.	1949
	MI	Mackinac	Bois Blanc Isl.	1949
	MI	Baraga	Silver River, 5 mi E of L'Anse	1949
	MI	Mackinac	Cedarville-Hessel	1954
	MI		Prentis Bay	1924
	MI	Marquette	Conway Point, Huron Mts.	1949
	MI	Cheboygan	Burt Township	1949
	MI	Keweenaw	NE end of Schatter Lake	1976
	MI	Charlevoix	Beaver Isl, Lake Geneserath	1961
	MI	Marquette	N entrance, Salmon Trout River	1976
Dick State Forest	MI	Chippewa	NE of Trout Lake	1966
Grand Sable SF	MI	Alger	1 km E of Hurricane River CG, Lake Sup.	1976
Haiwatha NF	MI	Delta	NE of Rapid River	1969
Haiwatha NF	MI	Delta	Chicago Lake N of Isabella	1969
Hartwick Pines SP	MI	Crawford		1958
Hiawatha NF	MI	Alger	Rock River	1933
Hiawatha NF	MI	Alger	Au Train	1933
Hiawatha NF	MI	Schoolcraft	Colwell Lake, 9 mi SSE of Shingleton	2000
Hiawatha NF	MI	Alger	Scott Falls, Au Train, Lake Superior	1957
Huron NF	MI	Oscoda	East Branch Big Creek	1973
Huron NF	MI	Iosco	Iargo Springs NW of Tawas City	1968
Isle Royale NP	MI	Keweenaw	Hay Bay	1959
Isle Royale NP	MI	Keweenaw	Windigo, .5 mi E	1984
Isle Royale NP	MI	Keweenaw	West Caribou Isl.	1983
Isle Royale NP	MI	Keweenaw	Tobin Harbor, Hidden Lake	1983
Isle Royale NP	MI	Keweenaw	Tobin Harbor Swamp	1958
Isle Royale NP	MI	Keweenaw	The Head, W of Long Point	1984
Isle Royale NP	MI	Keweenaw	Sruce Point	1983
Isle Royale NP	MI	Keweenaw	Siskiwit Swamp	1959
Isle Royale NP	MI	Keweenaw	Moskey Basin, NE side	1983
Isle Royale NP	MI	Keweenaw	Lookout Louise, SE	1983
Area	State	County	Locality	Year
Isle Royale NP	MI	Keweenaw	Long Point, half mile E	1984
Isle Royale NP	MI	Keweenaw	Grace Harbor, S shore	1984
Isle Royale NP	MI	Keweenaw	Duncan Bay, head of	1983

<i>Area</i>	<i>State</i>	<i>County</i>	<i>Locality</i>	<i>Year</i>
Isle Royale NP	MI	Keweenaw	Checker Point	1983
Isle Royale NP	MI	Keweenaw	Between Rock Harbor & Tobin Harbor	1980
Isle Royale NP	MI	Keweenaw	Brady Cove, S of	1983
Isle Royale NP	MI	Keweenaw	Tallman Isl., N of	1983
Isle Royale NP	MI	Keweenaw	Passage Isl.	1959
Isle Royale NP	MI	Keweenaw		1958
Isle Royale NP	MI	Keweenaw	Smithwick Isl	1958
Isle Royale NP	MI	Keweenaw	Siskiwit Bay CCC Camp	1958
Isle Royale NP	MI	Keweenaw	Forbes Lake	1959
Isle Royale NP	MI	Keweenaw	Grace Creek Trail	1958
Mackinac SF	MI	Mackinac	1 mi S of Hendricks	1968
Manistee NF	MI	Lake	Cool Creek, W of Irons	1968
Manistique R. SF	MI	Schoolcraft	Manistique River	1975
Manistique R. SF	MI	Delta	Carboneau Point	1976
Munuscong SF	MI	Chippewa	Lake Vital Point	1975
Munuscong SF	MI	Chippewa	Drummond Isl., Bass Cove	1976
Ottawa NF	MI	Baraga	5 mi NE of Sidnaw	1972
Ottawa NF	MI	Gogebic	Lake Gogebic	1957
Ottawa NF	MI	Ontonagon	Little Iron River	1967
Pictured Rocks NL	MI	Alger	Au Sable Point	1987
Pictured Rocks NL	MI	Alger	Munising, Sand Point	1987
Pictured Rocks NL	MI	Alger	Mosquito River mouth	1987
Pictured Rocks NL	MI	Alger	Hurricane River CG, 0.5 mi SW	1987
Pictured Rocks NL	MI	Alger	Chapel River mouth, 1 mi E	1987
Pictured Rocks NL	MI	Alger	Sevenmile Creek, mouth	1987
Pictured Rocks NL	MI	Alger	Grand Portal Point, 2 mi S	1987
Pictured Rocks NL	MI	Alger	Grand Sable Lake, E side	1987
Pictured Rocks NL	MI	Alger	Grand Portal Point, E side	1987
Pictured Rocks NL	MI	Alger	Beaver Lake, W of	1987
Pictured Rocks NL	MI	Alger	Twelvemile Beach CG, 1 mi NE	1987
Pictured Rocks NL	MI	Alger	N of Little Beaver Lake CG	1976
Pictured Rocks NL	MI	Alger	2 km N Little Beaver Lake CG	1976
Pictured Rocks NL	MI	Alger	100 m SW of Little Beaver Lake	1976
Presque Isle Park	MI	Marquette	Marquette	1976
Sturgeon River SF	MI	Dickinson	S end of O'Neil Lake	1971
Sturgeon River SF	MI	Dickinson	S of McGregor NW of Ralph	1971
Susie Isl.	MN	Cook	Susie Isl., near mine	1980
Taquamenon Falls SP	MI	Chippewa	between upper and lower falls	1975
Taquamenon Falls SP	MI	Luce	Upper Falls	1957
Taquamenon Falls SP	MI	Chippewa	Lower falls	1957
Wilderness SP	MI	Emmet	Mount Nebo Trail	1961

Count = : 102

APPENDIX 4 Definitions of Ranks

Definitions of Global Heritage Ranks

G3: Vulnerable—Vulnerable globally either because very rare and local throughout its range, found only in a restricted range (even if abundant at some locations), or because of other factors making it vulnerable to extinction or elimination. Typically 21 to 100 occurrences or between 3,000 and 10,000 individuals.

G4: Apparently Secure—Uncommon but not rare (although it may be rare in parts of its range, particularly on the periphery), and usually widespread. Apparently not vulnerable in most of its range, but possibly cause for long-term concern. Typically more than 100 occurrences and more than 10,000 individuals.

G5: Secure—Common, widespread, and abundant (although it may be rare in parts of its range, particularly on the periphery). Not vulnerable in most of its range. Typically with considerably more than 100 occurrences and more than 10,000 individuals.

Definitions of National and Subnational Heritage Ranks

N2 , S2: Imperiled—Imperiled in the nation or subnation because of rarity or because of some factor(s) making it very vulnerable to extirpation from the nation or subnation. Typically 6 to 20 occurrences or few remaining individuals (1,000 to 3,000).

N3, S3: Vulnerable—Vulnerable in the nation or subnation either because rare and uncommon, or found only in a restricted range (even if abundant at some locations), or because of other factors making it vulnerable to extirpation. Typically 21 to 100 occurrences or between 3,000 and 10,000 individuals.

N4, S4: Apparently Secure—Uncommon but not rare, and usually widespread in the nation or subnation. Possible cause of long-term concern. Usually more than 100 occurrences and more than 10,000 individuals.

N5, S5: Secure—Common, widespread, and abundant in the nation or subnation. Essentially ineradicable under present conditions. Typically with considerably more than 100 occurrences and more than 10,000 individuals.

N?, S?: Unranked—Nation or subnation rank not yet assessed.

Minnesota Ranks

Endangered: A species is considered endangered if the species is threatened with extinction throughout all or a significant portion of its range within Minnesota.

Threatened: A species is considered threatened if the species is likely to become endangered within the foreseeable future throughout all or a significant portion of its range within Minnesota.

Special Concern: A species is considered a species of special concern if, although the species is not endangered or threatened, it is extremely uncommon in Minnesota, or has unique or highly specific habitat requirements and deserves careful monitoring of its status. Species on the periphery of their range that are not listed as threatened may be included in this category along with those species that were once threatened or endangered but now have increasing or protected, stable populations.

Regional USDA Forest Service Ranks (USDA Forest Service. 1995. Forest Service Manual 2670.5. Washington, D.C.)

Sensitive Species: Those plant and animal species identified by a Regional Forester for which population viability is a concern, as evidenced by:

- a. Significant current or predicted downward trends in population numbers or density.
- b. Significant current or predicted downward trends in habitat capability that would reduce a species' existing distribution.